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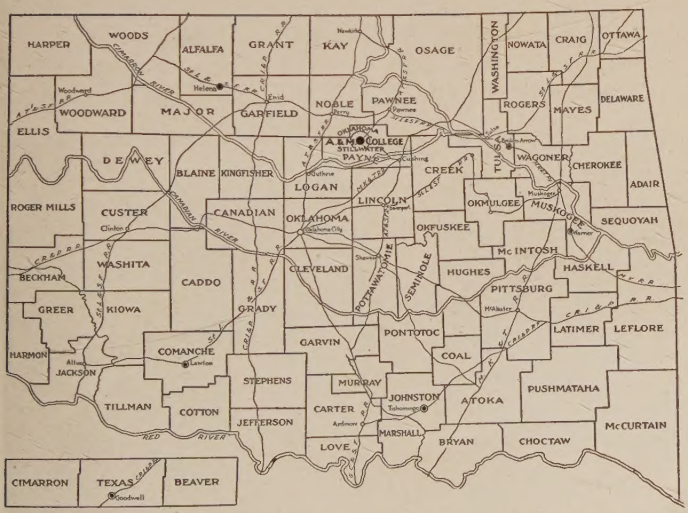
RCULAR NO. 27 MARCH, 1914

FOODS FROM THE GRAIN SORGHUMS

FETERITA PRODUCTS

BY CHAS. K. FRANCIS, CHEMIST



LOCATION OF THE A. & M. COLLEGE AND THE SIX SCHOOLS OF AGRICULTURE

STILLWATER, OKLAHOMA

ACKNOWLEDGMENT

I wish to express my appreciation of the help I have received from my assistant, Mr. A. A. Jones, in preparing this article for publication.

I have enjoyed the hearty cooperation of the Department of Domestic Science. The students of this department have aided in testing certain of the proposed recipes.

CHAS. K. FRANCIS.

FOODS FROM THE GRAIN SORGHUMS

FETERITA PRODUCTS

BY C. K. FRANCIS, Ph. D., *Chemist*

For several years the Oklahoma Agricultural Experiment Station has had experiments under way which have included the preparation of foods for the table from the valuable crops known as the grain sorghums. These include the Kaoliangs, kafir, milo, feterita and Pallu. The experiments have advanced sufficiently to show that most of these grains will furnish meals of a good grade when properly cleaned and ground.

Some results obtained with kafir at this Station have been mentioned in the daily press,* and the U. S. Department of Agriculture in a recent bulletin** suggests the value of kafir for preparing several good articles. In the bulletin, Dr. Langworthy gives recipes for kafir bread, gems, gingerbread, doughnuts and cookies. The studies of this Department have been made independently of those of the U. S. Department of Agriculture, although practically the same foods were prepared.

This bulletin will treat of feterita, and it is hoped that a complete

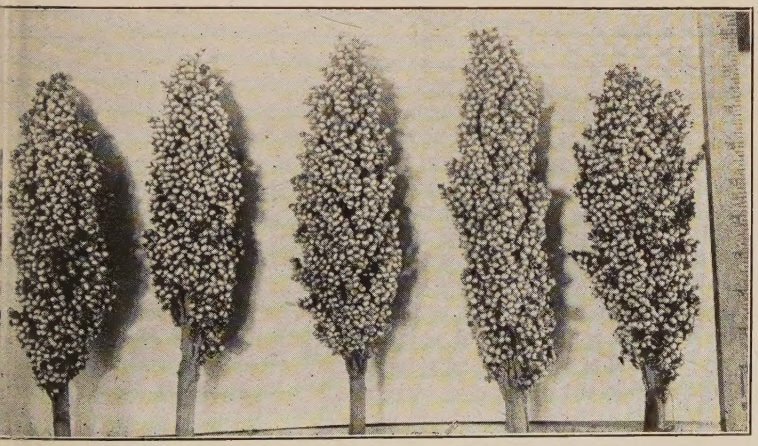


Figure 1.—Five Varieties of Feterita

*Daily Oklahoman, August 17, 1913.
**Farmers' Bulletin No. 559.

survey of the food values of the common grain sorghums may be prepared for publication at some other time.

Feterita, Andropogon sorghum, often called Sudan durra, was introduced into this country by the United States Department of Agriculture about six years ago. Since then it has received occasional attention and has been subjected to numerous field experiments. Feterita and white durra have been confused by some. The white durra was introduced into California many years ago and the seed has been sold by unscrupulous persons under many fanciful names. Feterita is a distinct variety and has not as many objectionable features as the white durra. Really feterita has not been grown long enough in this section to have its characteristics firmly fixed. Within the last two years it has produced good yields in Oklahoma and has apparently established itself as a good crop for this State. Some of the objectionable features of the plant are mentioned in a bulletin of this Station.* Many farmers are growing feterita and there is an increasing demand for the seed.

COMPOSITION AND FOOD VALUE

No records of digestion trials with feterita are available, but the analyses made in this laboratory show that it has practically the same composition as kafir. The table below gives the analyses of corn, kafir, feterita and wheat.

Analyses Showing How Feterita Compares With Other Grains

	Feterita.	Corn.**	Kafir.	Wheat.
Moisture	10.82	10.90	9.73	12.94
Ash	1.48	1.50	1.70	1.62
Crude protein	11.50	10.50	12.69	13.94
Carbohydrates (ex fiber)	71.71	69.60	70.98	67.70
Crude fiber	1.15	2.10	1.38	2.24
Crude fat	3.34	5.40	3.52	1.56

The above analyses of feterita and kafir represent the composition of the grains from one head each. No doubt a large number of analyses would lower the high quality indicated. However, the data show that feterita resembles corn in composition and that it has a high nutritive value. Feterita is somewhat softer than kafir and for this reason would probably give better results in a digestion experiment. Feeding experiments show that kafir has a feeding value of about 90 percent of that of corn, and there is every reason to believe that feterita would at least equal this.

*Wright, Oklahoma Agricultural Experiment Station, Press Bulletin No. 183.

**Average of all varieties. Bulletin No. 125, Office of Experiment Stations, U. S. Department of Agriculture.

PREPARING FOODS

The well dried seed was ground in a mill and then passed through a 40-mesh sieve. This produces a very fine meal, slightly brownish in color, and having a pleasant nut-like odor. A further treatment on bolting cloth gave a fine flour. The experimental work with the flours prepared from the grain sorghums will be published later.

Meals prepared from kafir or milo may be substituted in the recipes given below. The taste of the feterita product is much sweeter than the same article prepared from kafir.

Feterita Breakfast Food

(Quantity for six persons)

Cold water, 1 quart
Salt, 1 teaspoonful
Feterita meal, ½ scant cupful

Mix well and bring to a boil, while stirring occasionally to prevent burning. Keep at the boiling temperature at least thirty minutes. Sweeten with sugar and serve with cream or rich milk.

Feterita Muffins

(Quantity eight to twelve)

Lard 2 rounding tablespoonfuls
Eggs 2
Baking powder 2 teaspoonfuls
Feterita meal 1½ cups
Sugar 2 level tablespoonfuls
Milk 1 cup
Flour ½ cup

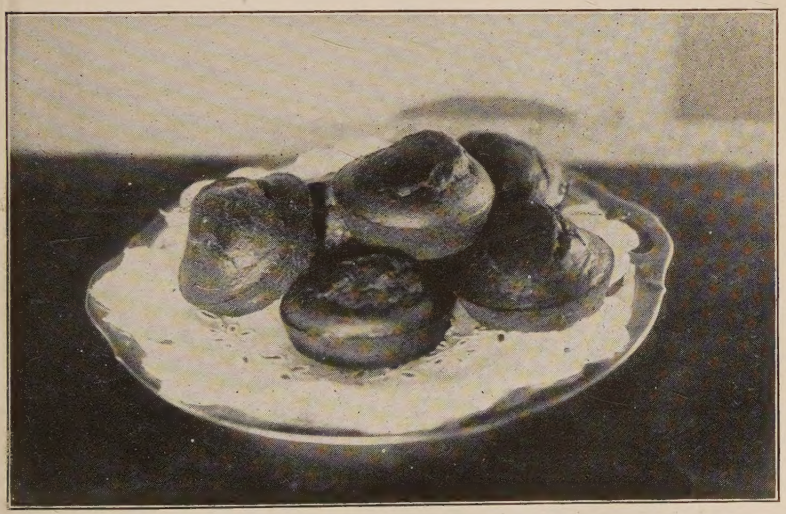


Figure 3.—Feterita Muffins Are Good

Cream the lard and sugar, then beat in the eggs. Add the milk, sift in the other ingredients and beat all into a smooth batter, thinning with water if too stiff. Put a good tablespoonful in each gem pan and bake in a hot oven for twenty minutes. Serve hot.

Figure 2.—A Loaf of Feterita Bread

Feterita Bread*

(Quantity, one brick loaf—1 pound)

Milk 1 cup
Salt ½ teaspoonful
Butter ½ tablespoonful
Sugar ½ tablespoonful
Compressed yeast ½ cake
Feterita meal and flour, equal parts (1¼ to 1½ cups each)

Scald the milk, add salt, butter and sugar, and when lukewarm add yeast cake which has been dissolved in three tablespoonfuls of warm water. Beat in enough flour and meal to make the mixture the consistency of thick cream. Let stand in a warm place until light and full of bubbles, then add flour and meal enough to knead. Let stand in a warm place until it doubles in bulk, then form into a loaf. When nearly double in bulk, put into oven and bake forty-five minutes.

Boston Brown Bread

(Quantity four loaves)

Feterita meal 1½ cups
Rye meal 1 cup
Molasses 1 cup
Salt 1 teaspoonful
Graham flour 1½ cups
Sour milk 2½ cups
Soda 1 heaping teaspoonful
Chopped raisins 1 cup

*Recipe by Professor Elizabeth Fulton, Domestic Science Department, Oklahoma Agricultural and Mechanical College.

Mix well, fill one-pound baking powder cans two-thirds full with batter. Put covers on cans and steam four hours. This may be done in a large kettle. The water should not be too deep—if it reaches one-half the height of the can it will be enough.

Oklahoma Brown Bread

Graham flour 1½ cups
Cottonseed flour* ½ cup
Feterita meal 1 cup

*Any prime cottonseed meal passed through an ordinary flour sifter or fine sieve will answer for this purpose.

Wheat flour 1 cup
Molasses 1 cup
Chopped raisins 1 cup
Sour milk 2½ cups
Soda 1 heaping teaspoonful

Mix and steam four hours, as directed under Boston brown bread.

The most valuable substance in any food is protein, because it is the chief muscle producing and strengthening ingredient. Cottonseed meal contains a large amount of protein, from 38 to 50 percent. When used as suggested here, cottonseed meal improves the color and flavor, and increases the nutritive value to a great extent.

Good beefsteak, when cooked, contains 23 percent protein, but all steaks will not average that much. Wholesome Oklahoma Brown Bread has been prepared containing about 16 percent protein. This article, then, closely approaches beef in food value.

Golden Feterita Bread

Feterita meal ¾ cup
Sugar ¼ cup
Salt ½ teaspoonful
Egg 1
Flour 1¼ cup
Baking powder 5 level teaspoonfuls
Milk 1 cup
Butter (melted) 1 or 2 tablespoonfuls

Mix and sift dry ingredients. Add milk, egg well beaten, and butter. Bake in shallow, buttered pan in hot oven twenty minutes.

Feterita Griddle Cakes

Flour 2 cups
Baking powder 1½ teaspoonfuls
Water (boiling) 1½ cups
Egg 1
Feterita meal ½ cup
Salt 1½ teaspoonfuls
Sugar 1-3 cup
Milk 1¼ cups
Butter (melted) 2 tablespoonfuls

Add meal to boiling water, boil five minutes. Turn into bowl, add milk and remaining dry ingredients mixed and sifted, then the egg well beaten, and butter. Drop by spoonfuls on greased, hot griddle. Cook on one side. When puffed, full of bubbles, and cooked on edge, turn and cook other side. Serve with butter and syrup. A good syrup may be made from one-half cup sugar, one-half cup hot water and one-half teaspoonful vanilla extract added when cold.

Feterita Oatmeal Cookies

Egg 1
Thin cream ¼ cup
Oatmeal (fine) ½ cup
Wheat flour ½ cup
Salt 1 teaspoonful
Sugar ¼ cup
Milk ¼ cup
Feterita meal 1½ cups
Baking powder 2 level teaspoonfuls

Beat egg until light, add sugar, cream and milk. Then add oatmeal, meal, baking powder and salt, mixed and sifted. Toss on a floured board, roll, cut in shape and bake in a moderate oven.

The preparation of the food described here will naturally suggest other articles. There are numerous products of corn and many similar ones may be prepared from feterita and the other grain sorghums. They ae all rich in starch, and methods have been developed in this laboratory for the manufacture of fine starch which has the characteristic properties of cornstarch.

The harder grains, such as kafir and milo, will pop. The popped kernels have a very pleasing flavor. An excellent grade of hominy has been made from several of them, but those having the largest grains, such as milo and feterita, are best adapted to this purpose.